

Project Report
Alaska Public Broadcasting, Inc.
Project Number 0117-DC-2004-15
January 1, 2006 – March, 31, 2006

Alaska Rural Communications Service & Satellite Interconnection Revitalization

Project Summary: the ARCS revitalization project continues to make measurable progress. The project objective is the restoration of television broadcast programming to bush and rural communities by either repairing or replacing non operational equipment. This includes transmitters, antennas, satellite dishes, receiver/decoders, or towers. Accomplishments to date include:

Restoration of full service: during this reporting period reliable ARCS service has been restored to more than 80 bush and rural communities where it had been completely off or seriously degraded.

Acquisition and refurbishment of equipment: refurbishing original transmitters while replacing the worn out modulator component continues to be the norm. We realize approximately \$5000 savings per unit when compared to purchase of a completely new system. We continue to employ this method: as we cycle rebuilt units to the village we bring the failed units back from those communities and send them off to the factory for rebuilding. We have acquired rights to use up to two dozen new receivers to decrease our response time when existing units fail in the villages.

Provision of timely customer support: with a system that includes 235 sites, technical staff is kept busy each day with myriad general service and trouble calls. Each call involves a unique set of factors and circumstances that must be analyzed so that the particular problems can be addressed. As might be expected the range of work can run from a simple reset to a complex set of problems which have resulted in the complete failure of a village's local service.

Establishment of community partnerships: the majority of the service restoration work is attained through partnership, technical staff working with dedicated community volunteers. Some sites and projects require travel in order to deal with the extraordinary circumstances.

Progress on phases two and three: design and implementation of modern delivery and control systems. The goal is to develop a consolidated delivery system and central point of control for multiple content streams. We have installed, tested and commissioned a new method of controlling the ARCS program schedule. We can now schedule and run programs from our office, or even on a laptop at home. Additionally, APBI completed equipment design work for the new satellite uplink system; received final approval from the State of Alaska and bid packages were prepared with equipment orders expected in April. Depending on manufacturer delivery times, we anticipate an early summer install and cut over.

The overall project is on schedule and within budget. To date, we have not encountered any serious unanticipated problems or set backs requiring significant actions or changes to the work scope. Restoration or upgrading of service presents a different challenge in each community. In partnership with our community liaisons, we continue to identify and solve these problems.

Activity Detail: January 1, 2006 – March 31, 2006

ARCS revitalization detail:

We booked over 300 calls for assistance, from 75 different locations.

We were able to restore service to 15 communities by means of either equipment replacement or troubleshooting existing equipment. Two major accomplishments include the restoration of service in Delta Junction and Petersburg by means of installing and turning up new 100 watt UHF systems. There were two system wide outages affecting Alaska Two and Alaska Three relating to local fiber link failures in Juneau, both of which were resolved by ATT/Alascom.

We sent 12 transmitters to the Larcen factory for refurbishment, and replaced nine satellite receivers in the field. In addition we sent 10 line conditioners; six LNB's and replaced three feed horns. As spring arrived we began to see a pattern of loss of satellite service at a variety of village sites. These outages are not system wide and have not affected our monitoring station at the Anchorage office. However, some of the outages reported from the villages appear to happen at certain times of day. We are investigating the outages, some of which we suspect are related to feed horn failure due to decay, some of which are related to movement of satellite dishes due to freeze and thaw, and still others that may be caused by interference, possibly caused by occasional use satellite uplinks in the lower 48.

Our project to install a wireless bridge in Unalaska made significant progress this quarter with the final testing of equipment in Anchorage including a real world test across a 3000 foot span. Following testing, the equipment was boxed and shipped to the Unalaska station in preparation for installation in May.

As reported above, APBI completed equipment design work for the new satellite uplink system; received final approval from the State of Alaska and bid packages were prepared with equipment orders expected in April. Depending on manufacturer delivery times, we anticipate an early summer install and cut over to the new uplink system.

Alaska Public Broadcasting Digital Distribution Network

Project Summary: The goal of the Alaska Public Broadcasting Digital Distribution Network (ADDN) project is to interconnect the public broadcasting system by means of the internet or constructed intranet. Upon completion, reliable high speed delivery of content - programming, data and voice - and access to commodity internet and advanced networking options will be available to the system, enhancing service to local, regional and statewide audiences served by those community institutions. The project is based on a network design developed under a previous federal grant from the US Department of Commerce. The project began in March 2004 and significant progress has been made. Accomplishments to date include:

Review of network design and work scope: a thorough review of the original design, item by item, was completed to determine if the selected equipment was still the best choice. The project work scope was also reviewed.

University partnership agreement: entered into a multi year agreement with the University of Alaska statewide office of information technology that provides ADDN with connectivity between the hubs via the University data backbone. It also provides for operational oversight of the network on a twenty-four hour basis once normalized operation begins. This oversight provides rapid reporting of problems so system maintenance and repair can be provided with minimal down time for network users.

State of Alaska partnership agreement: additional connectivity for the system will be made available to the network by the State of Alaska's Enterprise Technology Services division. This circuit will provide additional capacity between Juneau and Anchorage.

Equipment bids, purchase and deployment: the core equipment for all hub and control locations was installed and tested in August 2005. Data network equipment for Fairbanks, Anchorage, Juneau, Sitka, Petersburg, Wrangell, Ketchikan, Talkeetna, Haines Valdez, Kodiak, Homer and Kenai has been installed and is operational. Data network equipment for almost all of the remaining stations was assembled into packages in the Anchorage distribution location and shipped during this reporting period. The final round of installation work will begin in April.

The overall project is more or less on schedule and within budget. There have been some minor deployment delays and local technical issues to resolve but we have made good progress and we have not encountered any serious unanticipated problems or set backs requiring significant actions or changes to the work scope.

Activity Detail: January 1, 2006 – March 31, 2006

Highlights:

- Provided continuing O&M technical assistance to staff at KUAC, KAKM and KTOO, CoastAlaska, other installed sites
- developed electronic framework for long-term web storage of network documentation related to ADDN Project
- installed KCHU
- installed KTNA
- installed KBBI
- pre-built/shipped gear for: KUHB, KYUK, KCUK, KDLG, KOTZ, KBRW (all scheduled for second quarter 2006)
- attended Integrated Media Association Conference in Seattle (February) in support of APBI staff
- provided ongoing TCP/IP network design/operations guidance to APBI staff in support of statewide and site specific operations (e.g. terrestrial IP transition of broadcast signal...development of IP-based studio to transmitter link for Dutch Harbor, etc.)

Summary:

First Quarter 2006 APBI ADDN Project work focused primarily on the continued roll out and turn up of ADDN equipment in rural public broadcasting sites. Valdez, Talkeetna and Homer sites were completed during first quarter and the network equipment package was pre-built and staged at St. Paul, Bethel, Chevak, Dillingham, Kotzebue and Barrow

for continued turn-up work throughout April and May. The network package has yet to ship to McGrath, Fort Yukon, Sand Point and Unalakleet.

Beyond the basics of the continued rollout effort, the work focus has turned more and more toward operations and executing on the network's long-term sustainability strategy. A web-based electronic network documentation system is under development while element management systems (CiscoWorks2000 and CiscoSecure Access Control Server) have continued to develop.

APBI backbone utilization and application development also got underway in first quarter of 2006 and project resources were applied toward the solution of a variety of public broadcasting challenges. These included IP-based video transmissions testing – such testing began across the APBI backbone in January of this year. IP video transmission will continue to develop throughout second quarter 2006, as APBI prepares the new ADDN backbone as the pathway for transport of Gavel to Gavel from Juneau to Fairbanks, as well as UATV content from UAS to Fairbanks. The network is also being prepared for carriage of ARCS signal along the same path. Other applications development included: research into integration of EAS services (encapsulated in IP) across the ADDN network; development of IP-based public radio streaming; development of virtual private networks across the ADDN network.

It is expected that site installation work will be completed in second quarter of 2006, and that the project will focus on development of long-term network documentation and the completion of transitioning to an operations and maintenance mode.